Claims

What is claimed is:

1. A processing method for a distributed computing environment having multiple networks of computing nodes employing multicast messaging, each network having at least one computing node, at least one computing node of said multiple networks of computing nodes functioning as a multicast routing node, said method comprising:

automatically responding to a failure at said at least one computing node functioning as said multicast routing node to reassign said multicast routing function; and

wherein said automatically responding comprises dynamically reconfiguring said distributed computing environment to replace each failed multicast routing node of said at least one multicast routing node with another computing node of said multiple networks of computing nodes to maintain multicast message reachability to all functional computing nodes of said distributed computing environment.

2. The processing method of claim 1, wherein said at least one computing node functioning as said multicast routing node comprises multiple computing nodes functioning as multiple multicast routing nodes and said distributed computing environment comprises a plurality of groups of computing nodes, each group comprising one network of said multiple networks, and wherein each computing node functioning as multicast routing node comprises a group leader for multicast routing of a respective group of computing nodes, each group leader being coupled via a virtual interface to at least one other group leader of a group of computing nodes of the distributed computing environment, and wherein said automatically responding to said failure comprises automatically selecting a new group leader from functioning computing nodes of the respective group of computing nodes having said group leader failure.

3. The processing method of claim 2, wherein said dynamically reconfiguring comprises establishing a virtual interface from said new group leader to at least one other group leader within the distributed computing environment, said virtual interface comprising a multicast messaging tunnel between said group leaders, said multicast messaging tunnel being established using an mrouted daemon.

4. The processing method of claim 3, wherein said dynamically reconfiguring comprises ensuring only one computing node of each group of computing nodes is a group leader functioning as said multicast routing node for said group of computing nodes, thereby avoiding redundancy in routing of multicast messages between any two networks of computing nodes.

5. A processing system for a distributed computing environment, said processing system comprising:

multiple networks of computing nodes within the distributed computing environment, said multiple networks of computing nodes employing multicast messaging, with each network having at least one computing node, and at least one computing node of the multiple networks of computing nodes functioning as a multicast routing node;

means for automatically responding to a failure at said at least one computing node functioning as said multicast routing node to reassign said multicast routing function, wherein said means for automatically responding comprises means for dynamically reconfiguring said distributed computing environment to replace each failed multicast routing node of said at least one multicast routing node within another computing node of said multiple networks of computing nodes to maintain reachability of multicast messages to all functional computing nodes of said distributed computing environment.

6. The system of claim 5, wherein said at least one computing node functioning as said multicast routing node comprises multiple computing nodes functioning as multiple multicast routing nodes and said distributed computing environment comprises a plurality of groups of computing nodes, each group comprising one network of said multiple networks, and wherein each computing node functioning as multicast routing node comprises a group leader for multicast routing of a respective group of computing nodes, each group leader being coupled via a virtual interface to at least one other group leader of a group of computing nodes of the distributed computing environment, and wherein said means for automatically responding to said failure comprises means for automatically selecting a new group leader from functioning computing nodes of the respective group of computing nodes when said failure comprises a group leader failure.

7. The system of claim 6, wherein said means for dynamically reconfiguring comprises means for establishing a virtual interface from said new group leader to at least one other group leader within the distributed computing environment, said virtual interface comprising a multicast messaging tunnel between said group leaders, said multicast messaging tunnel being established using an mrouted daemon.

8. The system of claim 7, wherein said means for dynamically reconfiguring comprises means for ensuring only one computing node of each group of computing nodes is a group leader functioning as said multicast routing node for said group of computing nodes, thereby avoiding redundancy in routing of multicast messages between any two networks of computing nodes.

9. A processing system for a distributed computing environment comprising:

multiple networks of computing nodes within the distributed computing environment, said multiple networks of computing nodes employing multicast messaging, with each network having at least one computing node, and at least one computing node of the multiple networks of computing nodes functioning as a multicast routing node;

a processor associated with the distributed computing environment; and

code executable by said processor associated with said distributed computing environment, said code causing said processor to effect:

automatically responding to a failure at said at least one computing node functioning as said multicast routing node to reassign said multicast routing function; and

wherein said automatically responding comprises dynamically reconfiguring said distributed computing environment to replace each failed multicast routing node of said at least one

multicast routing node within another computing node of said multiple networks of computing nodes to maintain reachability of multicast messages to all functional computing nodes of said distributed computing environment.

10. An article of manufacture comprising:

a computer program product comprising a computer usable medium having computer readable program code means therein for maintaining multicast message reachability within a distributed computing environment having multiple networks of computing nodes employing multicast messaging, each network having at least one computing node, and at least one computing node of the multiple networks of computing nodes functioning as a multicast routing node, said computer readable program code means in said computer program product comprising:

(i) computer readable program code means for causing a computer to effect automatically responding to a failure at said at least one computing node functioning as said multicast routing node to reassign said multicast routing function; and

(ii) wherein said computer readable program code means for causing a computer to effect automatically responding comprises computer readable program code means for causing a computer to effect dynamically reconfiguring said distributed computing environment to replace each failed multicast routing node of said at least one

multicast routing node with another computing node of said multiple networks of computing nodes to maintain multicast message reachability to all functional computing nodes of said distributed computing environment.

11. The article of manufacture of claim 10, wherein said computer readable program code means for causing a computer to effect dynamically reconfiguring comprises computer readable program code means for causing a computer to effect ensuring only one computing node of each group of computing nodes functions as a multicast routing node for said group of computing nodes, thereby avoiding redundancy in routing of multicast messages between any two networks of computing nodes.

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